

1. Determine the domain of the function below.

$$f(x) = \frac{4}{15x^2 - 5x - 20}$$

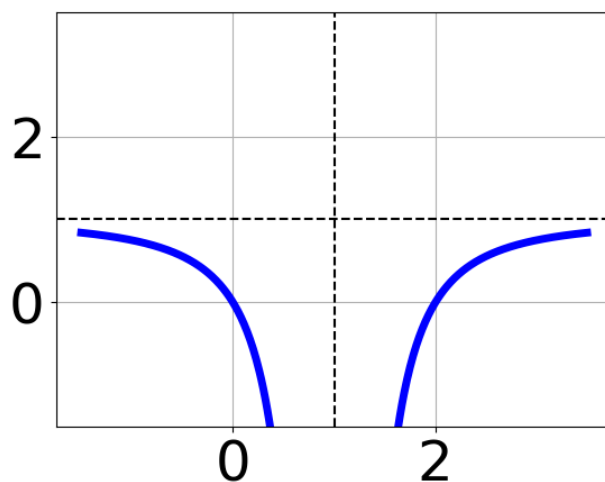
- A. All Real numbers.
- B. All Real numbers except $x = a$, where $a \in [-5, 0]$
- C. All Real numbers except $x = a$, where $a \in [-27, -22]$
- D. All Real numbers except $x = a$ and $x = b$, where $a \in [-5, 0]$ and $b \in [-0.67, 5.33]$
- E. All Real numbers except $x = a$ and $x = b$, where $a \in [-27, -22]$ and $b \in [10, 15]$

2. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{12}{-54x + 12} + 1 = \frac{12}{-54x + 12}$$

- A. $x \in [-0.78, 2.22]$
- B. $x_1 \in [-0.9, 0.2]$ and $x_2 \in [0.22, 3.22]$
- C. All solutions lead to invalid or complex values in the equation.
- D. $x_1 \in [-0.2, 0.8]$ and $x_2 \in [0.22, 3.22]$
- E. $x \in [-0.9, 0.2]$

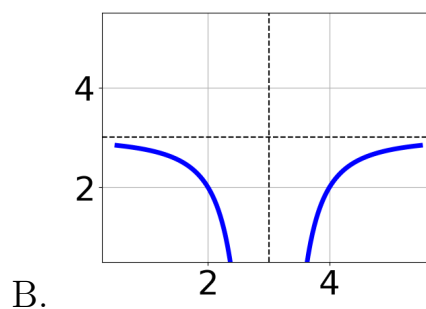
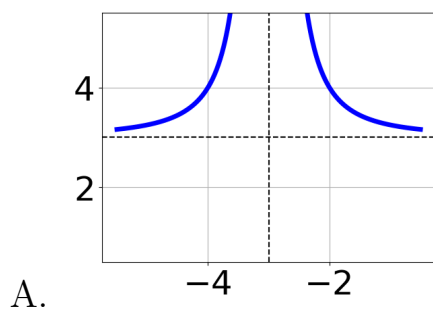
3. Choose the equation of the function graphed below.

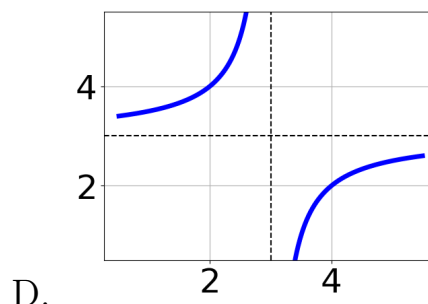
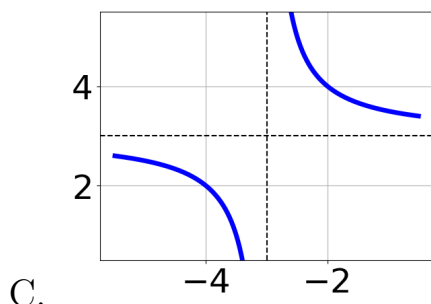


- A. $f(x) = \frac{1}{x-1} + 1$
- B. $f(x) = \frac{-1}{x+1} + 1$
- C. $f(x) = \frac{-1}{(x+1)^2} + 1$
- D. $f(x) = \frac{1}{(x-1)^2} + 1$
- E. None of the above

4. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x-3} + 3$$





E. None of the above.

5. Determine the domain of the function below.

$$f(x) = \frac{6}{18x^2 - 48x + 30}$$

- A. All Real numbers except $x = a$ and $x = b$, where $a \in [0.08, 1.26]$ and $b \in [1.34, 2.24]$
- B. All Real numbers.
- C. All Real numbers except $x = a$, where $a \in [14.2, 15.35]$
- D. All Real numbers except $x = a$, where $a \in [0.08, 1.26]$
- E. All Real numbers except $x = a$ and $x = b$, where $a \in [14.2, 15.35]$ and $b \in [35.49, 36.48]$

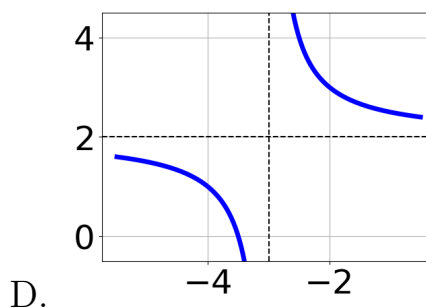
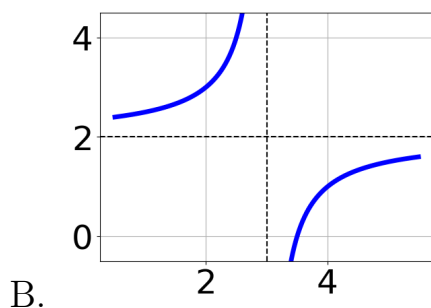
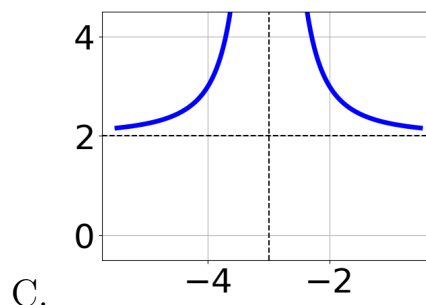
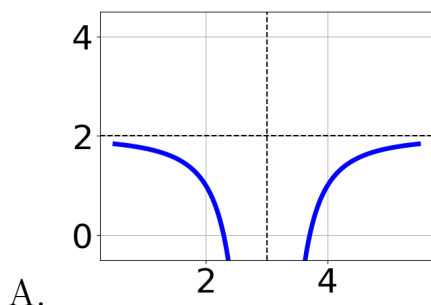
6. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-3}{9x + 7} + 8 = \frac{-8}{-81x - 63}$$

- A. $x \in [0.7, 0.98]$
- B. $x \in [-1.72, 1.28]$
- C. $x_1 \in [-0.73, -0.57]$ and $x_2 \in [0.2, 1.3]$
- D. All solutions lead to invalid or complex values in the equation.
- E. $x_1 \in [-1.11, -0.79]$ and $x_2 \in [-1.2, -0.2]$

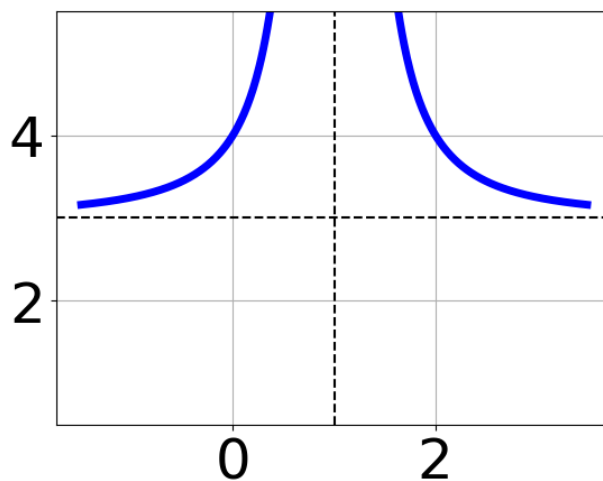
7. Choose the graph of the equation below.

$$f(x) = \frac{-1}{(x+3)^2} + 2$$



E. None of the above.

8. Choose the equation of the function graphed below.



A. $f(x) = \frac{-1}{x+1} + 3$

- B. $f(x) = \frac{-1}{(x+1)^2} + 3$
- C. $f(x) = \frac{1}{(x-1)^2} + 3$
- D. $f(x) = \frac{1}{x-1} + 3$
- E. None of the above

9. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-4x}{-6x-6} + \frac{-2x^2}{-12x^2+12x+24} = \frac{-3}{2x-4}$$

- A. $x_1 \in [-1.52, -0.93]$ and $x_2 \in [0, 4]$
- B. All solutions lead to invalid or complex values in the equation.
- C. $x \in [-1.52, -0.93]$
- D. $x \in [1.74, 3.27]$
- E. $x_1 \in [1.03, 1.6]$ and $x_2 \in [-4.89, -0.89]$

10. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{3x}{5x-2} + \frac{-2x^2}{15x^2-26x+8} = \frac{-4}{3x-4}$$

- A. $x \in [-3.37, 0.31]$
- B. $x \in [0.82, 2.75]$
- C. $x_1 \in [-0.86, 0.67]$ and $x_2 \in [0.4, 2.4]$
- D. $x_1 \in [-0.86, 0.67]$ and $x_2 \in [-4.78, 0.22]$
- E. All solutions lead to invalid or complex values in the equation.

11. Determine the domain of the function below.

$$f(x) = \frac{6}{24x^2 + 6x - 9}$$

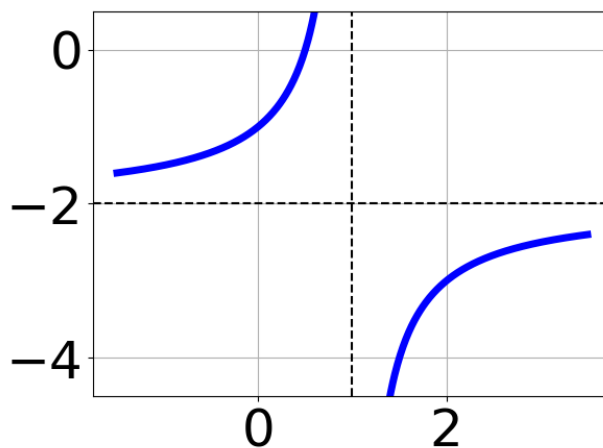
- A. All Real numbers except $x = a$ and $x = b$, where $a \in [-2, 0.2]$ and $b \in [-0.3, 2.5]$
- B. All Real numbers except $x = a$ and $x = b$, where $a \in [-12.4, -11.6]$ and $b \in [17.4, 19.7]$
- C. All Real numbers.
- D. All Real numbers except $x = a$, where $a \in [-2, 0.2]$
- E. All Real numbers except $x = a$, where $a \in [-12.4, -11.6]$

12. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{5}{-3x - 7} + 5 = \frac{6}{9x + 21}$$

- A. $x \in [2.63, 2.81]$
- B. $x_1 \in [-2.06, -1.55]$ and $x_2 \in [1.8, 3.8]$
- C. $x \in [-1.87, -0.87]$
- D. $x_1 \in [-2.46, -1.99]$ and $x_2 \in [-1.87, 0.13]$
- E. All solutions lead to invalid or complex values in the equation.

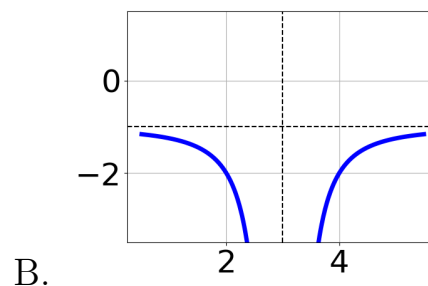
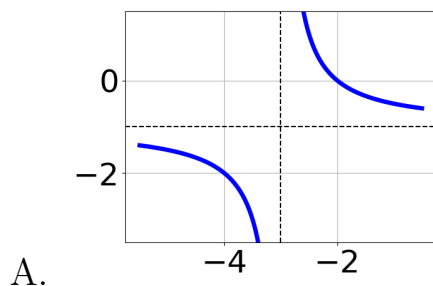
13. Choose the equation of the function graphed below.

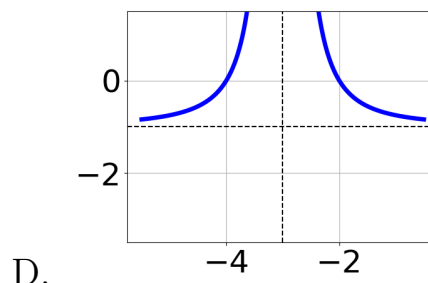
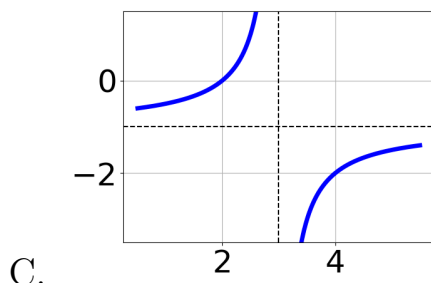


- A. $f(x) = \frac{1}{(x-1)^2} + 4$
- B. $f(x) = \frac{1}{x-1} + 4$
- C. $f(x) = \frac{-1}{(x+1)^2} + 4$
- D. $f(x) = \frac{-1}{x+1} + 4$
- E. None of the above

14. Choose the graph of the equation below.

$$f(x) = \frac{1}{x+3} - 1$$





E. None of the above.

15. Determine the domain of the function below.

$$f(x) = \frac{3}{12x^2 - 36x + 24}$$

- A. All Real numbers except $x = a$ and $x = b$, where $a \in [14.7, 16.9]$ and $b \in [17, 18.2]$
- B. All Real numbers except $x = a$, where $a \in [-1.1, 1.7]$
- C. All Real numbers except $x = a$, where $a \in [14.7, 16.9]$
- D. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.1, 1.7]$ and $b \in [1.7, 2.9]$
- E. All Real numbers.

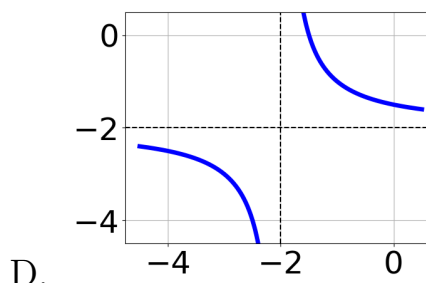
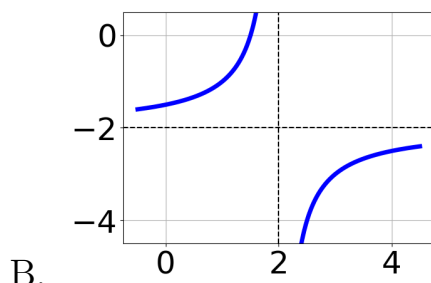
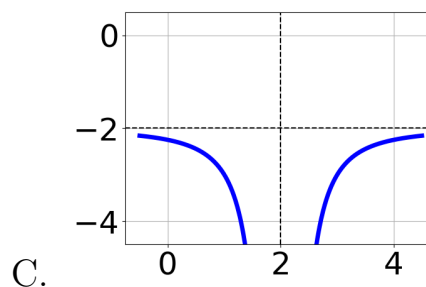
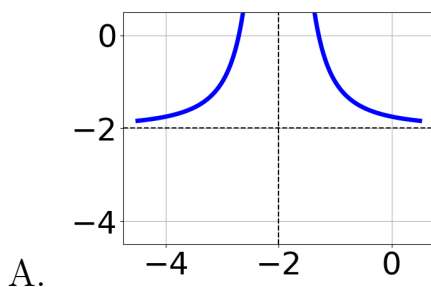
16. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{3}{5x + 4} + -7 = \frac{2}{-20x - 16}$$

- A. $x \in [0.87, 0.94]$
- B. $x \in [-1.7, 1.3]$
- C. All solutions lead to invalid or complex values in the equation.
- D. $x_1 \in [-0.7, -0.69]$ and $x_2 \in [0.9, 5.9]$
- E. $x_1 \in [-0.79, -0.72]$ and $x_2 \in [-0.7, 0.3]$

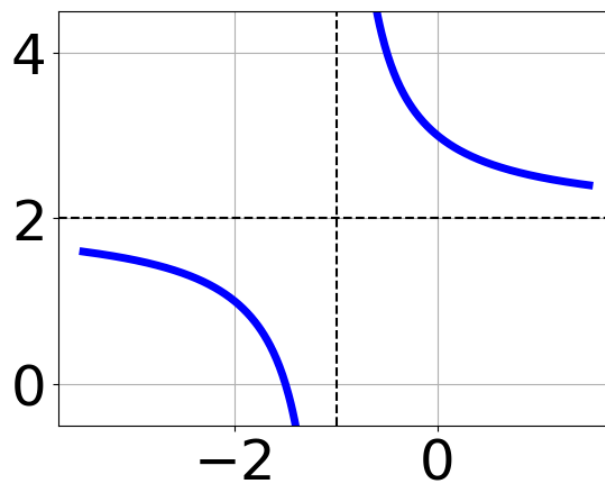
17. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x-2} - 2$$



E. None of the above.

18. Choose the equation of the function graphed below.



A. $f(x) = \frac{-1}{(x-1)^2} + 2$

- B. $f(x) = \frac{-1}{x-1} + 2$
- C. $f(x) = \frac{1}{x+1} + 2$
- D. $f(x) = \frac{1}{(x+1)^2} + 2$
- E. None of the above

19. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{5x}{3x+5} + \frac{-2x^2}{18x^2+39x+15} = \frac{-6}{6x+3}$$

- A. $x_1 \in [-2.39, -1.64]$ and $x_2 \in [-0.56, -0.38]$
- B. $x \in [-2.39, -1.64]$
- C. $x_1 \in [-1.48, -0.61]$ and $x_2 \in [-0.17, 1.79]$
- D. All solutions lead to invalid or complex values in the equation.
- E. $x \in [-0.75, -0.03]$

20. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-5x}{2x-6} + \frac{-6x^2}{14x^2-28x-42} = \frac{2}{7x+7}$$

- A. All solutions lead to invalid or complex values in the equation.
- B. $x_1 \in [0.16, 0.32]$ and $x_2 \in [2, 6]$
- C. $x \in [-1.05, -0.78]$
- D. $x_1 \in [0.16, 0.32]$ and $x_2 \in [-6.2, 2.8]$
- E. $x \in [-1.23, -1.17]$

21. Determine the domain of the function below.

$$f(x) = \frac{6}{30x^2 - 7x - 15}$$

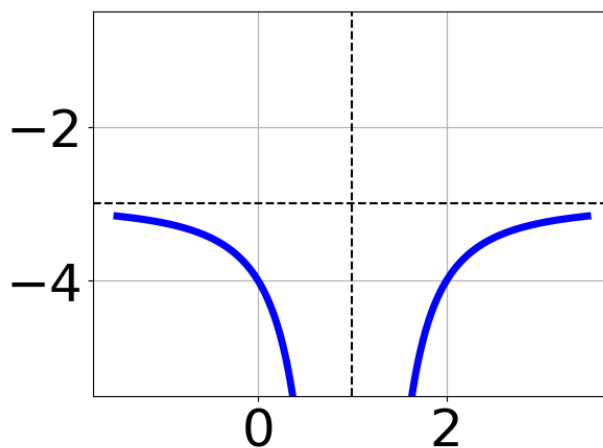
- A. All Real numbers.
 - B. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.42, -0.37]$ and $b \in [0.6, 1.37]$
 - C. All Real numbers except $x = a$, where $a \in [-1.42, -0.37]$
 - D. All Real numbers except $x = a$ and $x = b$, where $a \in [-16.01, -14.82]$ and $b \in [29.58, 30.49]$
 - E. All Real numbers except $x = a$, where $a \in [-16.01, -14.82]$
-

22. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-63}{-35x + 14} + 1 = \frac{-63}{-35x + 14}$$

- A. $x_1 \in [-0.3, 1]$ and $x_2 \in [-3.6, 1.4]$
 - B. $x_1 \in [-0.8, 0]$ and $x_2 \in [-3.6, 1.4]$
 - C. All solutions lead to invalid or complex values in the equation.
 - D. $x \in [0.4, 1.4]$
 - E. $x \in [-0.8, 0]$
-

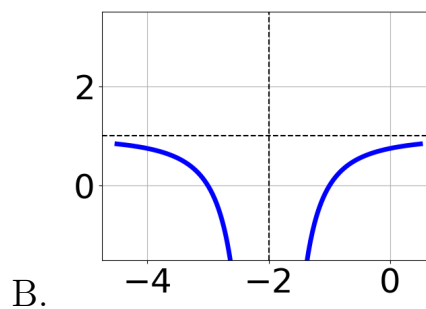
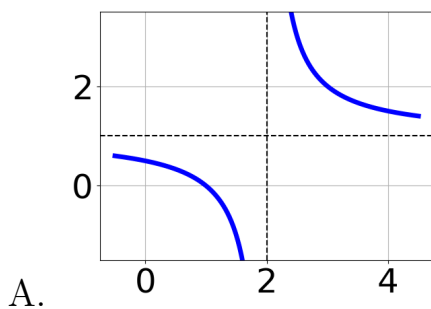
23. Choose the equation of the function graphed below.

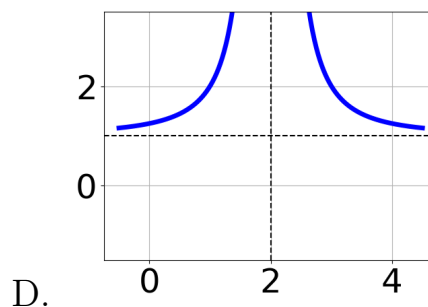
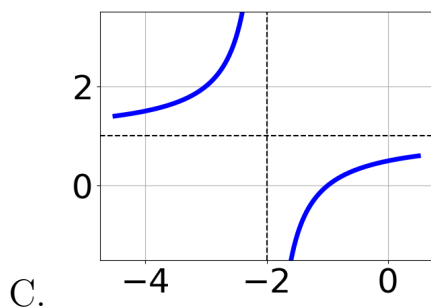


- A. $f(x) = \frac{-1}{x+1} + 4$
- B. $f(x) = \frac{-1}{(x+1)^2} + 4$
- C. $f(x) = \frac{1}{x-1} + 4$
- D. $f(x) = \frac{1}{(x-1)^2} + 4$
- E. None of the above

24. Choose the graph of the equation below.

$$f(x) = \frac{1}{x-2} + 1$$





E. None of the above.

25. Determine the domain of the function below.

$$f(x) = \frac{6}{15x^2 - 38x + 24}$$

- A. All Real numbers except $x = a$, where $a \in [11.98, 12.15]$
- B. All Real numbers.
- C. All Real numbers except $x = a$ and $x = b$, where $a \in [11.98, 12.15]$ and $b \in [29.98, 30.12]$
- D. All Real numbers except $x = a$, where $a \in [1.2, 1.24]$
- E. All Real numbers except $x = a$ and $x = b$, where $a \in [1.2, 1.24]$ and $b \in [1.31, 1.43]$

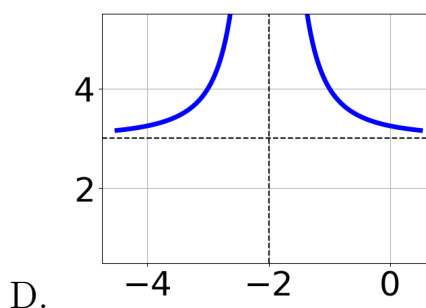
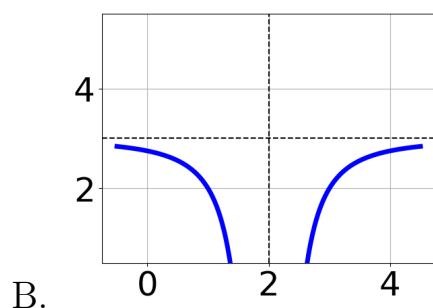
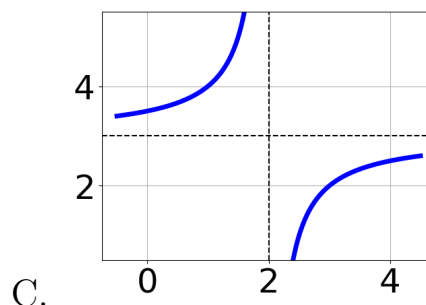
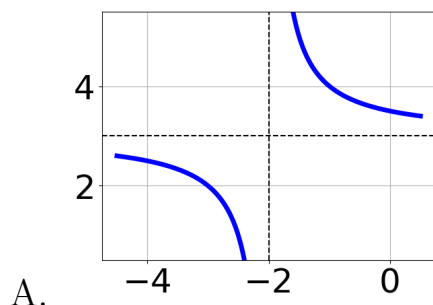
26. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-8}{-5x + 2} + -9 = \frac{-9}{-45x + 18}$$

- A. $x \in [-1.44, 1.56]$
- B. $x_1 \in [0.23, 0.43]$ and $x_2 \in [-0.44, 3.56]$
- C. All solutions lead to invalid or complex values in the equation.
- D. $x \in [-0.37, -0.15]$
- E. $x_1 \in [-0.37, -0.15]$ and $x_2 \in [-0.44, 3.56]$

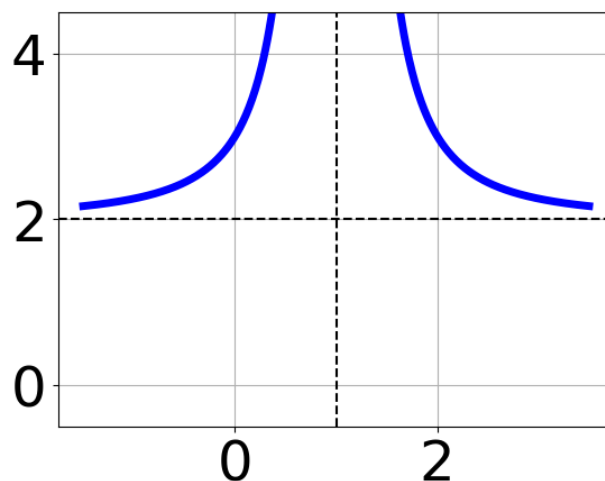
27. Choose the graph of the equation below.

$$f(x) = \frac{1}{x+2} + 3$$



E. None of the above.

28. Choose the equation of the function graphed below.



A. $f(x) = \frac{-1}{x-1} + 0$

- B. $f(x) = \frac{1}{x+1} + 0$
- C. $f(x) = \frac{-1}{(x-1)^2} + 0$
- D. $f(x) = \frac{1}{(x+1)^2} + 0$
- E. None of the above

29. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-7x}{2x-7} + \frac{-7x^2}{10x^2-39x+14} = \frac{-4}{5x-2}$$

- A. $x \in [-0.24, 0.83]$
- B. All solutions lead to invalid or complex values in the equation.
- C. $x_1 \in [2.32, 5.4]$ and $x_2 \in [-0.04, 0.83]$
- D. $x_1 \in [0.7, 2.1]$ and $x_2 \in [-0.72, 0.38]$
- E. $x \in [2.32, 5.4]$

30. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-6x}{-5x+4} + \frac{-4x^2}{-20x^2-4x+16} = \frac{-2}{4x+4}$$

- A. $x_1 \in [-0.08, 0.53]$ and $x_2 \in [-1.2, 6.8]$
- B. $x \in [-1.06, -0.81]$
- C. All solutions lead to invalid or complex values in the equation.
- D. $x \in [-1.47, -1.3]$
- E. $x_1 \in [-0.08, 0.53]$ and $x_2 \in [-1.42, 0.58]$